Chapter 27

Working with Multistate Alarm Objects

Introduction

The Multistate Alarm object provides the alarming capability for a Boolean or multistate attribute for any object, such as the Present Value of a Binary Input object.

Note: The Input Reference of a Multistate Alarm object should refer to enumeration or Boolean based attributes in order to perform as intended. Multistate Alarm objects referencing other attribute data types (e.g., floating point) yield unusual results, though not necessarily unusable results. Neither the VT100 nor Project Builder give an error message when this object is attached to any attribute other than enumeration or Boolean based attributes.

This object detects the alarm with respect to a difference from a defined normal state, and it can be configured to report the alarm.

This chapter describes how to:

- add a Multistate Alarm object
- edit a Multistate Alarm object
- command a Multistate Alarm object
- delete a Multistate Alarm object

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Key Concepts

Multistate Alarm Object

When the Multistate Alarm object's Input attribute value goes Off, it causes the generation of a Status Notification Report (SNR). For example, an alarm can be issued when a switch is in the Off position.

States

The Multistate Alarm object can be in any of the following states:

Normal State

This occurs when the Multistate Alarm object is in an acceptable, expected condition, as indicated by the Input attribute value.

Fault State

This occurs when the Multistate Alarm object enters the alarm condition, as indicated by the Input attribute value.

SNR

Status Notification Report. A report that is generated and routed via the Message Routing feature to printers and VT100 Terminals.

Attributes

The values of an object's attributes determine how the object operates. The Multistate Alarm object attributes described below are listed in the order that they appear on the screen. Entry requirements for these attributes are in Table 27-2.

For additional information about the Multistate Alarm object and its attributes, refer to the *Object Dictionary*.

Object Name

Identifies the object on the user interface.

Description

Provides optional information to further describe the object.

Object Type

Indicates the kind of object, such as Schedule, N2 Analog Input, or Multistate Alarm.

Object Category

Determines the general classification of an object to help define user access capability and message routing.

Enabled

Indicates if the object is active and executing an operational condition.

Input Reference

Indicates the object and attribute monitored for Changes-of-Value (COVs) and reported in alarm messages. The last value received from the Input Reference is written to the Input attribute. Also, the reliability of the Input Reference is monitored and saved in the Reliability attribute of this object.

Normal State

Indicates the attribute value that is compared to the Input. If the Input value is different from the Normal State, an Alarm state occurs.

Fault Ack Req (Acknowledgement Required)

Indicates whether a Message Requiring Acknowledgment (MRA) concerning a transition into the Fault state must be acknowledged.

Fault Priority

Indicates the priority assigned to the Fault state that gets transmitted to the SNR.

Normal Ack Required (Acknowledgement Required)

Indicates whether an MRA concerning a transition into the Normal state must be acknowledged.

Normal Priority

Indicates the priority assigned to the Normal state that gets transmitted to the SNR.

Event Enable

Determines if the object sends reports (SNRs), if this value is True.

Dialout Required

Forces a dial out to a destination device (if True), when this object goes into an alarm or warning state.

Delay Time

Indicates the amount of time Input has to get within the alarm limits before the object reports the alarm, following a Normal state change. The Present Value does not change what is reported until the Delay Time has expired. If the Delay Time is changed, any current timer is canceled and reset to the new Delay Time.

Alarm Message Text

Provides text associated with the SNR that a user can add for further information when an alarm or warning occurs.

Procedure Overview

Table 27-1: Working with Multistate Alarm Objects

To Do This	Follow These Steps:
Add a Multistate Alarm Object	Browse to and highlight the container or object where the Multistate Alarm is to be added. Press the F3 (Add) key. Highlight Multistate Alarm and press Enter. Fill in the fields using Table 27-2. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Edit a Multistate Alarm Object	Browse to and highlight a Multistate Alarm object. Press Enter to open the object. Press the F3 (Edit) key. Fill in the fields using Table 27-2. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Command a Multistate Alarm Object	Browse to and highlight a Multistate Alarm object. Press the F2 (Command) key. Use the Spacebar and the Backspace key to cycle through the list until the desired command appears. Press Enter.
Delete a Multistate Alarm Object	Browse to and highlight a Multistate Alarm object. Press Enter to open the object. Press the Delete key. Press the Tab key to confirm the deletion.

Detailed Procedures

Adding a Multistate Alarm Object

To add a Multistate Alarm object:

1. Browse to and highlight the container or object where the Multistate Alarm is to be added.
2. Press the F3 (Add) key. The Add Object list appears.
3. Highlight Multistate Alarm and press Enter. The first of two Multistate Alarm object attribute screens appears (Figure 27-1).

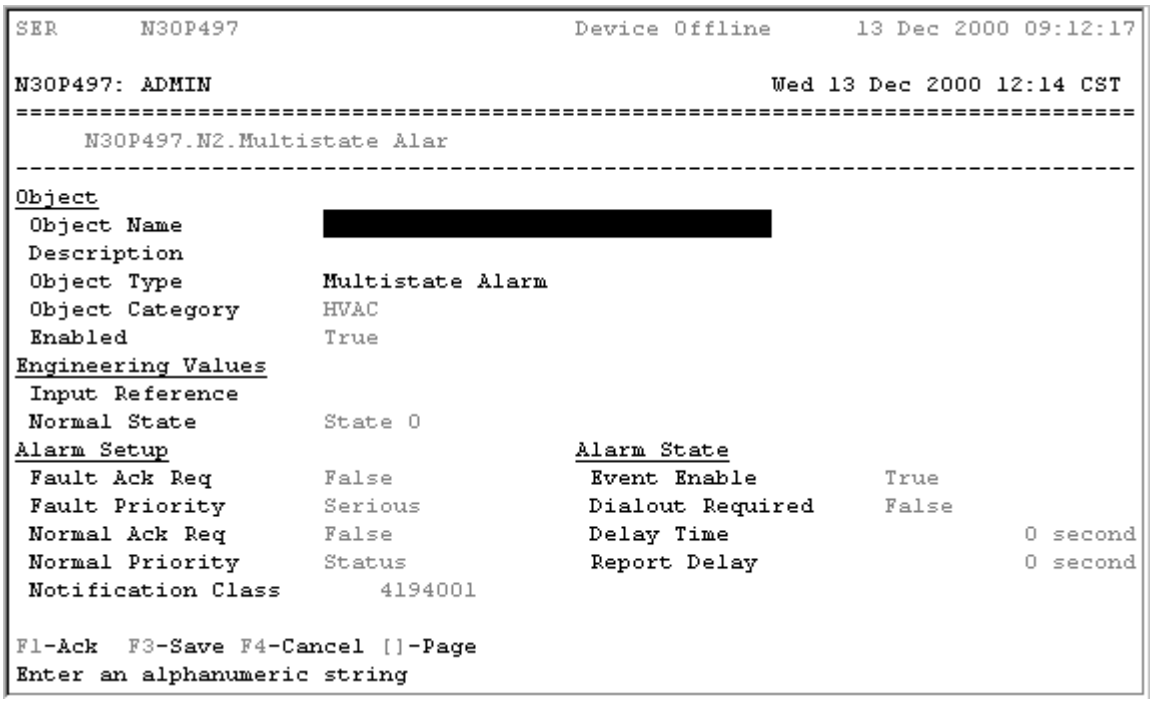

Figure 27-1: Multistate Alarm Object Attribute Screen (1 of 2)

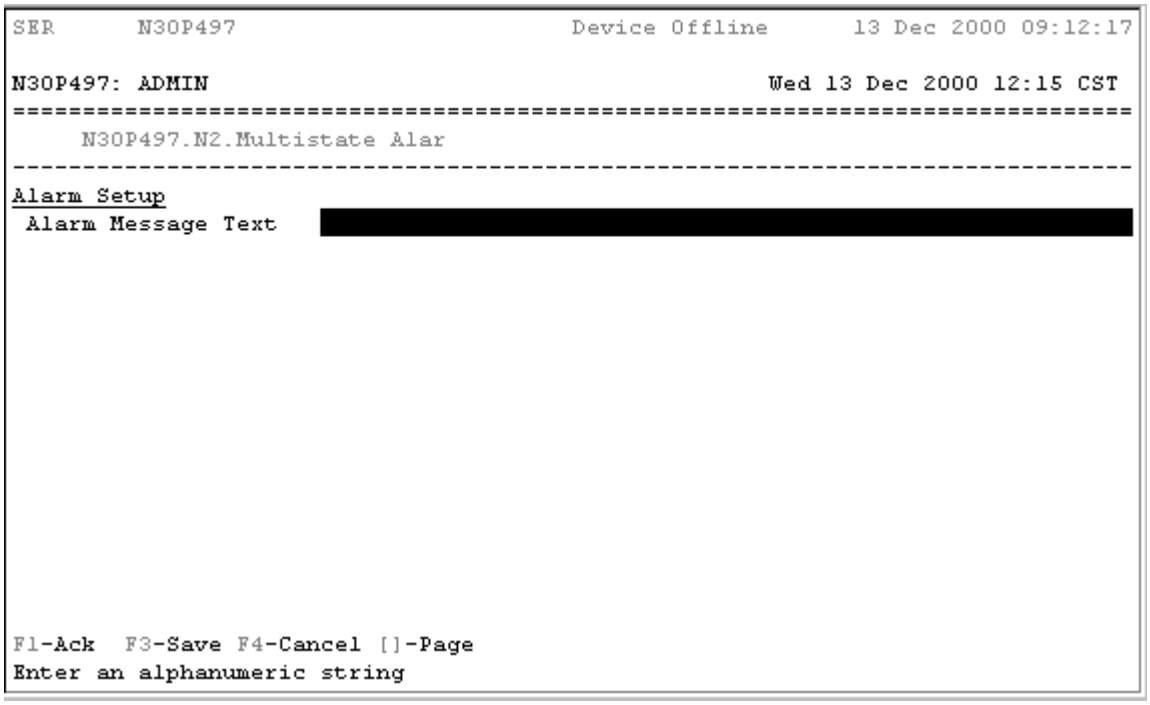
SER N30P497 Device Offline 13 Dec 2000 09:12:17
N30P497: ADMIN Wed 13 Dec 2000 12:15 CST
N30P497.N2.Multistate Alar
Alarm Setup
Alarm Message Text
F1-Ack F3-Save F4-Cancel []-Page
Enter an alphanumeric string

Figure 27-2: Multistate Alarm Object Attribute Screen (2 of 2)

4. Fill in the fields using Table 27-2.

Table 27-2: Attribute Entry Requirements

Screen Area	Attribute	Required	Default	Options/Range
Object	Object Name	No	Blank	Maximum 32 characters Invalid characters: @ . ? * $ # : ' [ ] If not completed, the system assigns a name.
	Description	No	Blank	Maximum 40 characters
	Object Type	Yes	Multistate Alarm	The default is preset and cannot be changed.
	Object Category	Yes	HVAC	Use the Spacebar and Backspace key to view and select options: HVAC, Fire, Security, Services, Administrative.
	Enabled	Yes	True	Use the Spacebar and Backspace key to view and select options: True, False.

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Screen Area (Cont.)	Attribute	Required	Default	Options/Range
Engineering Values	Input Reference	Yes		If this Multistate Alarm object is being added to a container, the exact name of the object and attribute to have an alarm must be entered. If this object is being added to another object, the name of that object appears automatically with its Present Value attribute. Example: `HEATING SP.Present Value.` Present Value is the default attribute that appears.
	Normal State	Yes	State 0	Use the Spacebar and Backspace key to view and select options: State 0-State 31.
Alarm Setup	Fault Ack Req	Yes	False	Use the Spacebar and Backspace key to view and select options: False = Acknowledgement not required. True = Acknowledgement required.
	Fault Priority	Yes	Serious	Use the Spacebar and Backspace key to view and select options: Critical, Serious, Important, Status.
	Normal Ack Req	Yes	False	Use the Spacebar and Backspace key to view and select options: False = Acknowledgement not required. True = Acknowledgement required.
	Normal Priority	Yes	Status	Use the Spacebar and Backspace key to view and select options: Critical, Serious, Important, Status.
	Notification Class			Identifies the instance number (Object Identifier [OID]) of the local Notification Class object to which notifications are sent.
Alarm State	Event Enable	Yes	True	Use the Spacebar and Backspace key to view and select options: True, False.
	Dialout Required	Yes	False	Use the Spacebar and Backspace key to view and select options: True, False.
	Report Delay			The number of seconds after the input value goes outside of an alarm or warning limit that the object waits before generating a warning or alarm. This applies only to changes from the normal state. After this time, the input value is reevaluated. If it is still outside the limit, a report is generated.
	Delay Time	No	0 second	Units = seconds
Alarm Setup	Alarm Message Text	No	Blank	Type a message up to one line that appears when an alarm occurs.

5. Press the F3 (Save) key.
6. Check the User Assistance area of the screen to verify if the save was successful. If errors are detected, correct them and resave the entries. Once the save is successful, continue with Step 7.
7. Press any key to continue.
8. Press the F4 (Cancel) key to return to the container hierarchy.

Editing a Multistate Alarm Object

To edit a Multistate Alarm object:

1. Browse to and highlight a Multistate Alarm object.
2. Press Enter to open the object.

Note: Additional attributes appear. Refer to the *Object Dictionary* for more information.

3. Press the F3 (Edit) key. The Multistate Alarm object attribute screen appears (Figure 27-1 and Figure 27-2).
4. Fill in the fields using Table 27-2.
5. Press the F3 (Save) key.
6. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 7.
7. Press any key to continue.
8. Press the F4 (Cancel) key to return to the container hierarchy.

Commanding a Multistate Alarm Object

To command a Multistate Alarm object:

1. Browse to and highlight a Multistate Alarm object.
2. Press the F2 (Command) key. The Command field appears.
3. Use the Spacebar and the Backspace key to cycle through the list until the desired command appears. The Multistate Alarm object supports the commands described in Table 27-3.

Table 27-3: Supported Commands

Command	Description
Cancel Delay Time	Cancels the current Delay Timer.
Enable	Allows regular alarm analysis.
Disable	Prevents alarm analysis. Forces object to normal condition.

4. Press Enter.

Deleting a Multistate Alarm Object

To delete a Multistate Alarm object:

1. Browse to and highlight a Multistate Alarm object.
2. Press Enter to open the object.
3. Press the Delete.
4. Press the Tab key to confirm the deletion.